

## Editorial



# A paradigm shift in medical care

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**Received:** Sep 26, 2019

**Accepted:** Oct 7, 2019

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In the past, major efforts were made to overcome public health challenges and to eliminate or reduce the impact of diseases through medical care. However, technological developments have caused the paradigm of medical care to shift to a new era of disease management.

Advances in genetics have now enabled us to predict the probability that individuals will be born with or develop certain diseases and to accurately diagnose diseases through genomic analyses. In treating cancer, advances in immunology have supplemented chemotherapy with immunotherapy, leading us to a more patient-centered and individualized approach. Additionally, progress in the field of genetic engineering, such as gene editing, has shed light on the treatment and management of incurable diseases.

As the state of the art in biotechnology, regenerative medicine—in which cells, tissues, and organs are replaced or regenerated to restore their original function—has become a key technology in cutting-edge medicine.

In addition, the application of data science in medicine has extended the frontiers of medical care. Artificial intelligence is used to analyze and read radiological images, thereby providing precise diagnoses. Analyses using big data have provided further understanding of diseases. Advances in smart health and wearable medical devices have enabled early detection and disease analysis, making early treatment and management possible, as well as personalized treatments in which patients can participate in treatment. Through these advances, digital healthcare has entered into widespread use in day-to-day medical care.

With these remarkable developments, the biosciences/healthcare industry is making rapid progress. Nonetheless, concerns have been raised about safety and ethical issues. Many regulations and laws for safety have been established in response to these developments. Beyond legislation, the ethical principles and practices of individual researchers are always important, since medical research deals with human beings.

Ongoing research and experimentation in various fields will bring advances to medical care in the future. We expect that future forms of medical care will cure many human diseases and enable people to lead a healthy and abundant life.